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(54) **CONTRACT APPARATUS AND METHOD OF BLOCKCHAIN USING DIGITAL CONTENTS ORGINAL KEY**

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(57) **ABSTRACT**

Disclosed are blockchain type contract terminal and method using a digital contents original confirmation key. There are provided: an input module that is inputted with a contract term regarding an object of contract; a position information collection module that collects, in real time, position information of the object at the time of contract; a contract creation module that creates a contract by using the contract term inputted by the input module and the position information at the time of contract collected in real time by the position information collection module; a digital contents original confirmation key interface module that provides the contract term inputted by the input module and the position information at the time of contract collected in real time by the position information collection module to a contents initializer and an international authentication adjustment server, and receives a digital contents original confirmation key from the contents initializer or the international authentication adjustment server; a digital contents original contract creation module that combines the digital contents original confirmation key received at the digital original confirmation key interface module with the contract created at the contract creation module to create a digital contents original contract; a blockchain creation module that encrypts the contract created by the digital contents original contract creation module to create a blockchain; and a blockchain distributed storage control module that transmits the blockchain created at the blockchain creation module to another terminal in a P2P manner for storing on a network in a distributed manner.

FIG. 1

FIG. 2

INPUT, BY INPUT MODULE, CONTRACT TERM REGARDING OBJECT OF CONTRACT — S101

COLLECT, BY POSITION INFORMATION COLLECTION MODULE,
POSITION INFORMATION OF OBJECT AT THE TIME OF CONTRACT IN REAL TIME — S102

CREATE, BY CONTRACT CREATION MODULE, CONTRACT BY USING CONTRACT TERM
INPUTTED BY INPUT MODULE AND POSITION INFORMATION AT THE TIME OF CONTRACT
COLLECTED IN REAL TIME BY POSITION INFORMATION COLLECTION MODULE — S103

PROVIDE, BY DIGITAL CONTENTS ORIGINAL CONFIRMATION KEY INTERFACE MODULE,
CONTRACT TERM INPUTTED BY INPUT MODULE AND POSITION INFORMATION AT THE TIME
OF CONTRACT COLLECTED IN REAL TIME BY POSITION INFORMATION COLLECTION MODULE
TO CONTENTS INITIALIZER AND INTERNATIONAL AUTHENTICATION ADJUSTMENT SERVER,
AND RECEIVE DIGITAL CONTENTS ORIGINAL CONFIRMATION KEY FROM CONTENTS
INITIALIZER OR INTERNATIONAL AUTHENTICATION ADJUSTMENT SERVER — S104

COMBINE, BY DIGITAL CONTENTS ORIGINAL CONTRACT CREATION MODULE,
DIGITAL CONTENTS ORIGINAL CONFIRMATION KEY RECEIVED AT DIGITAL ORIGINAL
CONFIRMATION KEY INTERFACE MODULE WITH CONTRACT CREATED AT CONTRACT
CREATION MODULE TO CREATE DIGITAL CONTENTS ORIGINAL CONTRACT — S105

ENCRYPT, BY BLOCKCHAIN CREATION MODULE, DIGITAL CONTENTS
ORIGINAL CONTRACT CREATED BY DIGITAL CONTENTS ORIGINAL CONTRACT CREATION
MODULE TO CREATE BLOCKCHAIN — S106

TRANSMIT, BY BLOCKCHAIN DISTRIBUTED STORAGE CONTROL MODULE,
BLOCKCHAIN CREATED AT BLOCKCHAIN CREATION MODULE TO ANOTHER TERMINAL
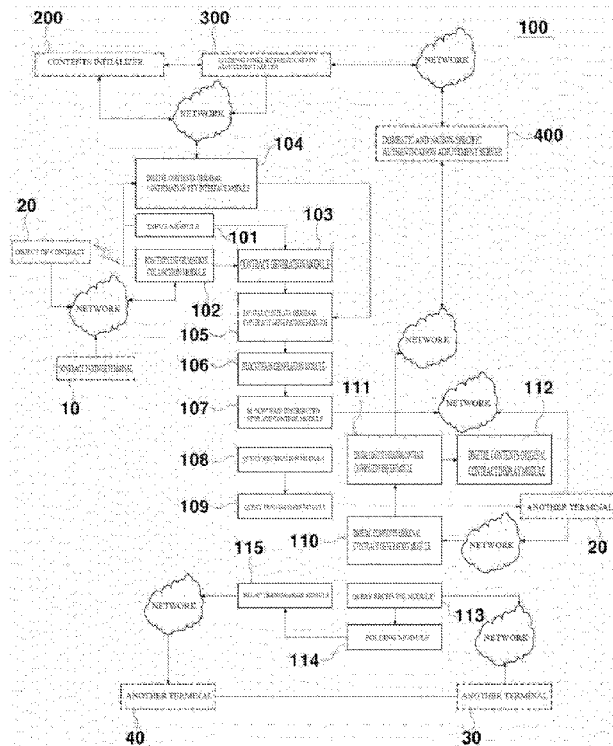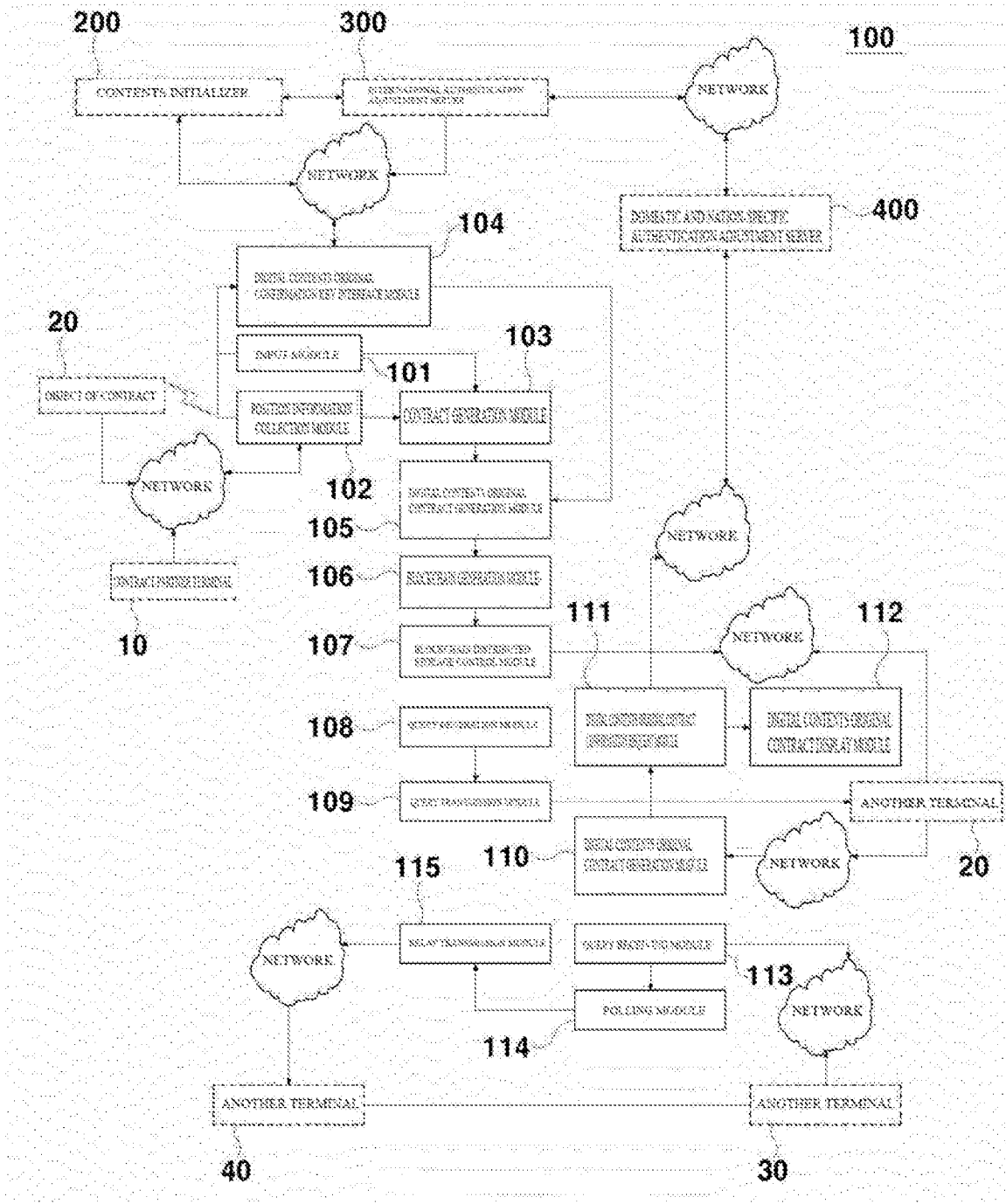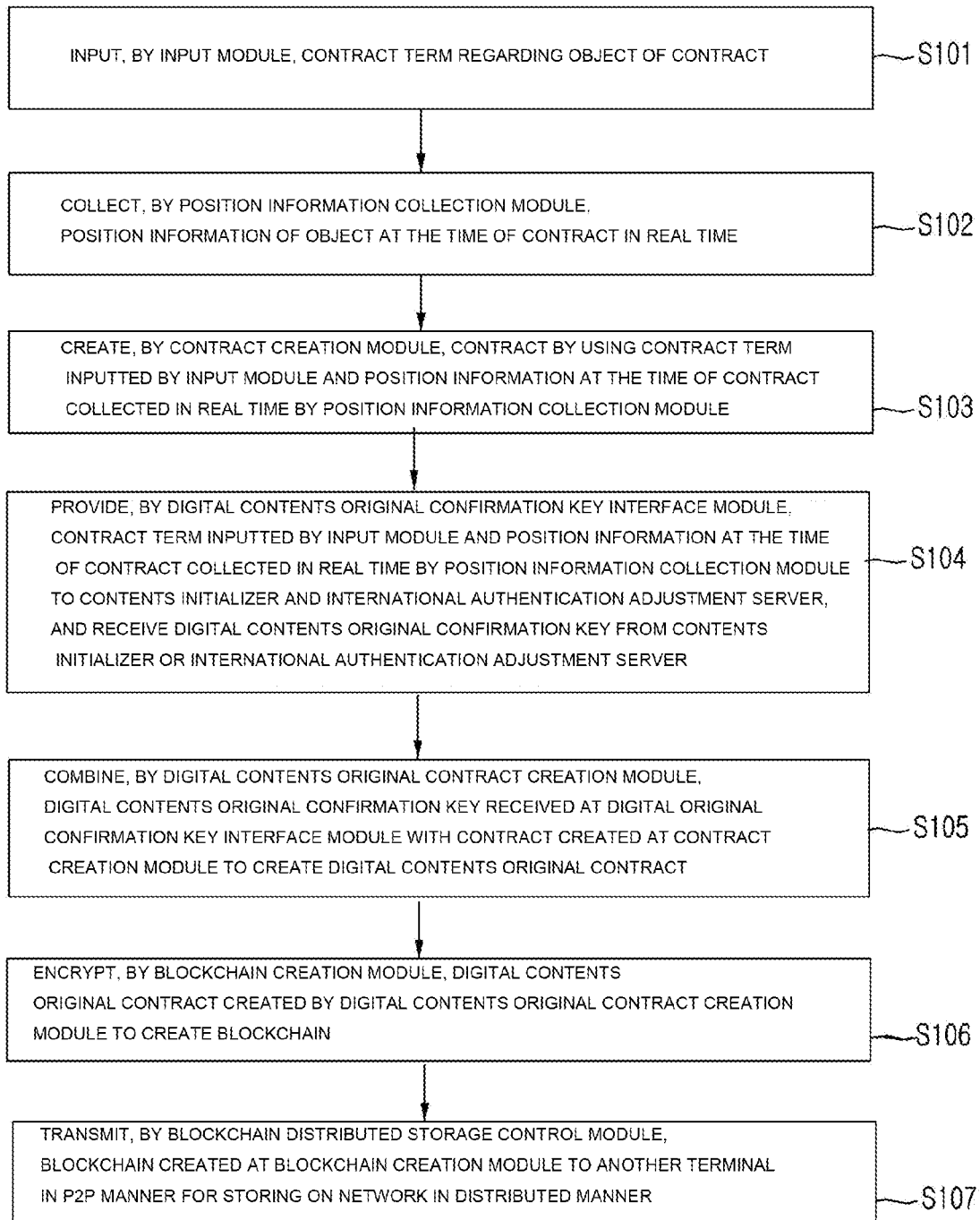IN P2P MANNER FOR STORING ON NETWORK IN DISTRIBUTED MANNER — S107

CONTRACT APPARATUS AND METHOD OF BLOCKCHAIN USING DIGITAL CONTENTS ORGINAL KEY

TECHNICAL FIELD

[0001] The present disclosure relates to blockchain type contract terminal and method, and more specifically, to blockchain type contract terminal and method using a digital contents original confirmation key.

BACKGROUND

[0002] In recent years, the technological value of the blockchain has increased, and its marketability and technological security are being newly evaluated.

[0003] Unlike a centralized system such as a specific server, blockchain is a distributed system and has a very robust structure against the risk of tampering or hacking.

[0004] However, when a contract is stored on the related blockchain, only the timestamp, which is information on the time of transaction is stored, and other information is not stored.

[0005] Since it is not possible to confirm information other than the time of transaction from the contract stored on the related blockchain, it is not easy to determine whether or not the contract itself is original or whether or not it is tampered with.

[0006] Therefore, it is necessary for the blockchain technology to have a means for strengthening the security of the contract itself.

DISCLOSURE

Technical Problem

[0007] An object of the present disclosure is to provide a blockchain type contract terminal using a digital contents original confirmation key.

[0008] Another object of the present disclosure is to provide a blockchain type contract method using the digital contents original confirmation key.

Technical Solution

[0009] A blockchain type contract terminal using a digital contents original confirmation key according to the object of the present disclosure described above may be configured to include: an input module that is inputted with a contract term regarding an object of contract; a position information collection module that collects, in real time, position information of the object at the time of contract; a contract creation module that creates a contract by using the contract term inputted by the input module and the position information at the time of contract collected in real time by the position information collection module; a digital contents original confirmation key interface module that provides the contract term inputted by the input module and the position information at the time of contract collected in real time by the position information collection module to a contents initializer and an international authentication adjustment server, and receives a digital contents original confirmation key from the contents initializer or the international authentication adjustment server; a digital contents original contract creation module that combines the digital contents original confirmation key received at the digital original confirmation key interface module with the contract created

at the contract creation module to create a digital contents original contract; a blockchain creation module that encrypts the contract created by the digital contents original contract creation module to create a blockchain; and a blockchain distributed storage control module that transmits the blockchain created at the blockchain creation module to another terminal in a P2P manner for storing on a network in a distributed manner.

[0010] In this example, the blockchain creation module may be configured to encrypt each block of the blockchain using a hash function.

[0011] A blockchain type contract method using a digital contents original confirmation key according to another object of the present disclosure described above may be configured to include: inputting, by an input module, a contract term regarding an object of contract; collecting, by a position information collection module, position information of the object at a time of contract in real time; creating, by a contract creation module, a contract by using the contract term inputted by the input module and the position information at the time of contract collected in real time by the position information collection module; providing, by a digital contents original confirmation key interface module, the contract term inputted by the input module and the position information at the time of contract collected in real time by the position information collection module to a contents initializer and an international authentication adjustment server, and receiving a digital contents original confirmation key from the contents initializer or the international authentication adjustment server; combining, by a digital contents original contract creation module, the digital contents original confirmation key received at the digital original confirmation key interface module with the contract created at the contract creation module to create a digital contents original contract; encrypting, by a blockchain creation module, the digital contents original contract created by the digital contents original contract creation module to create a blockchain; and transmitting, by a blockchain distributed storage control module, the blockchain created at the blockchain creation module to another terminal in a P2P manner for storing on a network in a distributed manner.

[0012] In this example, the encrypting, by the blockchain creation module, the digital contents original contract created by the digital contents original contract creation module to create a blockchain may be configured to encrypt each block of the blockchain using a hash function.

Advantageous Effects

[0013] According to the blockchain type contract terminal and method using the digital contents original confirmation key described above, the position information of the contracting party at the time of contract, the current position information of the contract object, and the like are automatically collected and stored on the blockchain, together with the contract and further, the digital contents original confirmation key is received and the contract is converted into the digital contents original contract and stored on the blockchain. Accordingly, it is possible to determine whether or not the contract itself is authentic or original, and improve the effect of security thereof.

[0014] In addition, it is possible to find the position of a lost object of contract by tracking and collecting the position information of the object of contract.

BRIEF DESCRIPTION OF THE DRAWING

[0015] FIG. 1 is a block diagram of a blockchain type contract terminal using a digital contents original confirmation key according to an embodiment of the present disclosure.

[0016] FIG. 2 is a flowchart of a blockchain type contract method using a digital contents original confirmation key according to an embodiment of the present disclosure.

BEST MODE

[0017] Various modifications may be made to exemplary embodiments of the present disclosure, and certain exemplary embodiments will be described below in detail with reference to attached drawings. However, it should be understood that the disclosure is not to be limited to the specific embodiments, but includes all modifications, equivalents, and alternatives falling within the spirit and scope of the disclosure. The like reference numerals are used for similar elements in describing each of the drawings.

[0018] The expression, "first," "second," and so on may be used in describing a variety of elements, but these elements should not be limited to the expression. The expressions are used only for the purpose of distinguishing one element from another. For example, without departing from the scope of the present disclosure, a first component may be referred to as a second component, and similarly, the second component may also be referred to as the first component. The expression "and/or" includes any combination of a plurality of associated listed items or any of a plurality of associated listed items.

[0019] It should be understood that when an element is referred to as being "connected" or "coupled" to another element, it may be directly connected or coupled to another element, with or without yet another element being present in between. On the other hand, it should be understood that when an element is referred to as being "directly connected" or "directly coupled" to another element, there are no other element present in between.

[0020] The expressions used herein are only for describing certain exemplary embodiments, and not intended to limit the scope of the disclosure. Unless otherwise specified, a singular expression includes a plural expression. The expression "comprise" or "have" as used herein is intended to designate an existence of steps, operations, elements, components or a combination of these, and accordingly, this should not be understood as precluding an existence or a possibility of adding one or more of other characteristics, numbers, steps, operations, elements, components or a combination of these.

[0021] Unless defined otherwise, all expressions used herein, including technical or scientific expressions, have the same meaning as commonly understood by one of ordinary skill in the art to which this disclosure belongs. Expressions such as those defined in commonly used dictionaries should be interpreted as having a meaning consistent with the meaning in the context of the relevant art and are to be interpreted as ideal or overly formal in meaning unless explicitly defined in the present application.

[0022] Hereinafter, preferred embodiments according to the present disclosure will be described in detail with reference to the accompanying drawings.

[0023] FIG. 1 is a block diagram of a blockchain type contract terminal using a digital contents original confirmation key according to an embodiment of the present disclosure.

[0024] Referring to FIG. 1, a blockchain type contract terminal 100 using a digital contents original confirmation key according to an embodiment of the present disclosure may be configured to include an input module 101, a position information collection module 102, a contract creation module 103, a digital contents original confirmation key interface module 104, a digital contents original contract creation module 105, a blockchain creation module 106, a blockchain distributed storage control module 107, a query creation module 108, a query transmission module 109, a digital contents original contract receiving module 110, a digital contents original contract confirmation request module 111, a digital contents original contract display module 112, a query receiving module 113, a polling module 114, and a relay transmission module 115.

[0025] Hereinafter, the detailed configuration will be described.

[0026] The input module 101 may be configured to be inputted with a contract term regarding an object of contract.

[0027] As used herein, the object of contract may refer to an object the contract is directed to, and may be baggage for a baggage contract, a bicycle for a bicycle sale contract, a pet for a pet sale contract, a door key for a real estate sale contract, and so on.

[0028] The contract term may include various contract-related details such as both parties to the contract, identities of the contractors, addresses of the contractors, accounts of the contractors, content of the contract, and so on.

[0029] The position information collection module 102 may be configured to collect in real time position information of the object of contract at the time of contract.

[0030] This may serve as the position information at the time of contract, of the object of contract that the consumer wants to track.

[0031] The position information collection module 102 may be configured to automatically collect position information of the baggage, the bicycle, the pet, the door key, and the like.

[0032] The position information collection module 102 may be configured to collect the position information from a GPS chip or the like attached to the object of contract such as the baggage, the bicycle, the pet, the door key, and the like, by using a sensor having a Bluetooth function.

[0033] In addition, the position information collection module 102 may be configured to collect the position information such as an IP address, GPS coordinates or the like of not only the object of contract, but also a contract partner terminal 10 of a contract partner.

[0034] The position information of the object of contract or the contract partner terminal 10 may be stored on a blockchain together with the contract.

[0035] Meanwhile, the position information collection module 102 may be configured to track and collect not only the position information at the time of contract, but also the continuous position information of the object of contract. In this case, even when an article as the object of contract is lost, its position can be accurately tracked and found.

[0036] The contract creation module 103 may be configured to create a contract by using the contract term inputted by the input module 101 and the position information at the

time of contract collected in real time by the position information collection module **102**.

[0037] The digital contents original confirmation key interface module **104** may be configured to perform a process of combining the contract created at the contract creation module **103** with a specific key to authenticate this as a digital contents original contract.

[0038] That is, the digital contents original confirmation key interface module **104** may be configured to provide the contract term inputted by the input module **101** and the position information at the time of contract collected in real time by the position information collection module **102** to a contents initializer **200** and an international authentication adjustment server **300**.

[0039] In addition, the digital contents original confirmation key interface module **104** may be configured to receive the digital contents original confirmation key through the contents initializer **200** and the international authentication adjustment server **300**.

[0040] Hereinbelow, the contents initializer **200** and the international authentication adjustment server **300** will be described first. The contents initializer **200** and the international authentication adjustment server **300** are configured to convert any contract or document into a predetermined digital contents original contract and issue a key for certification.

[0041] The contents initializer **200** is involved in creating an initial digital contents original contract. The contents initializer **120** may be configured to receive user information about the contract, digital signature, position information of the object of contract, position information of the contract partner terminal **10**, a timestamp, and the like from the digital contents original confirmation key interface module **104**.

[0042] The contents initializer **200** may receive a public key infrastructure (PKI) key from the international authentication adjustment server **300**. In addition, the contents initializer **200** may be configured to initially create an original confirmation key by combining the PKI key with the user information, the digital signature, the position information of the object of contract, the position information of the contract partner terminal **10**, the time stamp, and the like, which are previously received.

[0043] In this case, the contents initializer **200** may assign a serial number to the original confirmation key.

[0044] In this example, the user information may include an ID and a password of the user, the timestamp may include information on the date and time when the creation of the contract is completed and when the contract is stored, and the digital signature may include coordinate information for each pixel of the signature image of the user and history information according to an update of the timestamp.

[0045] The contents initializer **200** may be configured to provide the original confirmation key assigned with the serial number to the international authentication adjustment server **300** and the digital contents original confirmation key interface module **104**.

[0046] Meanwhile, the international authentication adjustment server **300** may be configured to store and maintain/manage the corresponding original confirmation key.

[0047] The international authentication adjustment server **300** may be configured to create a PKI key and provide it to the contents initializer **300**, and to create and provide an original confirmation key for a contract after the initial creation of the contents initializer **200**.

[0048] The digital contents original contract creation module **105** may be configured to combine the digital contents original confirmation key received at the digital original confirmation key interface module **104** with the contract created at the contract creation module **103** to create a digital contents original contract. Accordingly, the contract is converted into a digital contents original contract and certified as the only one original contract.

[0049] The blockchain creation module **106** may be configured to encrypt the digital contents original contract created by the digital contents original contract creation module **105** to create a blockchain.

[0050] The blockchain creation module **106** may be configured to encrypt each block using a hash function.

[0051] The blockchain creation module **106** may be configured to store the contract in each block and store the user information, the digital signature, the position information of the object of contract and the position information of the contract partner terminal **10** at the time of contract, the timestamp at the time of the contract, and the like in the header of the block.

[0052] In addition to the contract, the blockchain creation module **106** may continuously store the position information as it is tracked and collected, to continuously ensure the position information of the object of contract document even after the contract.

[0053] The blockchain distributed storage control module **107** may be configured to transmit the blockchain created at the blockchain creation module **106** to another terminal **20** in a P2P manner for storing on a network in a distributed manner. In this example, the another terminal **20** is another node terminal on the network, and may include a number of random terminals.

[0054] The query creation module **108** may be configured to create a query of the contract that the user wants to search. In this example, the query is a query for searching and loading the user's own contract that the user wants to find.

[0055] The query transmission module **109** may be configured to transmit the query created by the query creation module **108** to a predetermined another terminal **20**. In this example, the query transmission module **109** may be configured to transmit a query for searching for a contract stored in a number of nodes on the network in a blockchain form in a distributed manner.

[0056] The digital contents original contract receiving module **110** may be configured to receive a digital contents original contract corresponding to the query from the another terminal **20**. The another terminal **20** may be configured to search and provide the digital contents original contract corresponding to the query by polling the blockchain.

[0057] The digital contents original contract confirmation request module **111** may request the domestic and nation-specific authentication adjustment server **400** to confirm whether or not the digital contents original contract received by the digital contents original contract receiving module **110** is original.

[0058] In this example, the domestic and nation-specific authentication adjustment server **400** is configured to authenticate that the digital contents original contract described above is original.

[0059] The domestic and nation-specific authentication adjustment server **400** may be configured to receive the original confirmation key from the contents initializer **200** or the international authentication adjustment server **300** and authenticate that the digital contents original contract is original.

[0060] The digital contents original contract display module **112** may be configured to display the digital contents original contract received at the digital contents original contract receiving module **110**.

[0061] The query receiving module **113** may be configured to receive a query for searching a certain digital contents original contract from certain, another terminal **30**.

[0062] The polling module **114** may be configured to poll the blockchain to read a digital contents original contract corresponding to the query received at the query receiving module **110**.

[0063] The relay transmission module **115** may be configured to relay the digital contents original contract read from the polling module **114** to the terminal **30** that issued the query. It may be configured to relay through each node, and relay to the another terminal **30** that issued the query through another terminal **40**.

[0064] FIG. 2 is a flowchart of a blockchain type contract method using a digital contents original confirmation key according to an embodiment of the present disclosure.

[0065] Referring to FIG. 2, the input module **101** is inputted with the contract term regarding the object of contract (S**101**).

[0066] Next, the position information collection module **102** collects the position information of the object at the time of contract in real time (S**102**).

[0067] Next, the contract creation module **103** creates the contract by using the contract term inputted by the input module **101** and the position information at the time of contract collected in real time by the position information collection module **102** (S**103**).

[0068] Next, the digital contents original confirmation key interface module **104** provides the contract term inputted by the input module **101** and the position information at the time of contract collected in real time by the position information collection module **102** to the contents initializer **200** and the international authentication adjustment server **300**, and receives the digital contents original confirmation key from the contents initializer **200** or the international authentication adjustment server **300** (S**104**).

[0069] Next, the digital contents original contract creation module **105** combines the digital contents original confirmation key received at the digital original confirmation key interface module **104** with the contract created at the contract creation module **103** to create a digital contents original contract (S**105**).

[0070] Next, the blockchain creation module **106** encrypts the contract created at the contract creation module **103** to create a blockchain (S**106**).

[0071] In this example, the blockchain creation module **106** may be configured to encrypt the previous block on the blockchain using a hash function in the contract.

[0072] Next, the blockchain distributed storage control module **107** transmits the blockchain created at the blockchain creation module **106** to the another terminal **20** in a P2P manner for storing on a network in a distributed manner (S**107**).

[0073] The present disclosure has been described in detail. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the disclosure, are given by way of illustration only, since various changes and modifications within the scope of the disclosure will become apparent to those skilled in the art from this detailed description.

INDUSTRIAL APPLICABILITY

[0074] The present disclosure relates to a blockchain type contract terminal and method, and can be applied to all industrial fields requiring a contract.

What is claimed is:

1. A blockchain type contract terminal using position information comprising:

an input module that is inputted with a contract term regarding an object of contract;

a position information collection module that collects, in real time, position information of the object at the time of contract;

a contract creation module that creates a contract by using the contract term inputted by the input module and the position information at the time of contract collected in real time by the position information collection module;

a digital contents original confirmation key interface module that provides the contract term inputted by the input module and the position information at the time of contract collected in real time by the position information collection module to a contents initializer and an international authentication adjustment server, and receives a digital contents original confirmation key from the contents initializer or the international authentication adjustment server;

a digital contents original contract creation module that combines the digital contents original confirmation key received at the digital original confirmation key interface module with the contract created at the contract creation module to create a digital contents original contract;

a blockchain creation module that encrypts the contract created by the digital contents original contract creation module to create a blockchain; and

a blockchain distributed storage control module that transmits the blockchain created at the blockchain creation module to another terminal in a P2P manner for storing on a network in a distributed manner.

2. The blockchain type contract terminal according to claim 1, wherein the blockchain creation module is configured to encrypt each block of the blockchain using a hash function.

3. A blockchain type contract method using position information comprising:

inputting, by an input module, a contract term regarding an object of contract;

collecting, by a position information collection module, position information of the object at a time of contract in real time;

creating, by a contract creation module, a contract by using the contract term inputted by the input module and the position information at the time of contract collected in real time by the position information collection module;

providing, by a digital contents original confirmation key interface module, the contract term inputted by the input module and the position information at the time of contract collected in real time by the position information collection module to a contents initializer and an international authentication adjustment server, and receiving a digital contents original confirmation key from the contents initializer or the international authentication adjustment server;

combining, by a digital contents original contract creation module, the digital contents original confirmation key received at the digital original confirmation key interface module with the contract created at the contract creation module to create a digital contents original contract;

encrypting, by a blockchain creation module, the digital contents original contract created by the digital contents original contract creation module to create a blockchain; and

transmitting, by a blockchain distributed storage control module, the blockchain created at the blockchain creation module to another terminal in a P2P manner for storing on a network in a distributed manner.

4. The blockchain type contract method according to claim **3**, wherein the encrypting, by the blockchain creation module, the digital contents original contract created by the digital contents original contract creation module to create a blockchain is configured to encrypt each block of the blockchain using a hash function.

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